FEMA 1.20:130193

APR 5 1990

FLOOD INSURANCE STUDY

WHITFIELD COUNTY, GEORGIA

UNINCORPORATED AREAS

FEBRUARY 16, 1990

Federal Emergency Management Agency

COMMUNITY NUMBER 130193

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

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FLOOD INSURANCE STUDY

WHITFIELD COUNTY,
UNINCORPORATED AREAS,
GEORGIA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Unincorporated Areas of Whitfield County, Georgia, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by Post, Buckley, Schuh & Jernigan, Inc. (the Study Contractor) for the Federal Emergency Management Agency (FEMA), under Contract No. EMW-85-1961. This study was completed in December 1986.

The hydrologic and hydraulic analyses for East Chickamauga Creek were taken from the Flood Insurance Study for Catoosa County, Georgia (Reference 1).

The hydrologic and hydraulic analyses for Slaughter Pen Creek were taken from the Flood Insurance Study for the City of Dalton, Georgia (Reference 2).

1.3 Coordination

A coordination meeting held on February 28, 1985, was attended by representatives of FEMA, Whitfield County, and the Study Contractor. The primary purpose of this meeting was to identify streams requiring detailed study.

On March 30, 1989, the results of this Flood Insurance Study were reviewed and accepted at a final coordination meeting attended by representatives of the Study Contractor, FEMA, and the community.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the unincorporated areas of Whitfield County, Georgia. The area of study is shown on the Vicinity Map (Figure 1). The incorporated areas within the county were excluded from this study.

Flooding caused by overflow of Mill Creek, Little Creek, Drowning Bear Creek, Tar Creek, Tar Creek Tributary, Little Swamp Creek, Slaughter Pen Creek, East Chickamauga Creek, McLellan Creek, and Coahulla Creek was studied in detail.

Areas having low development potential or minimal flood hazards were previously studied using approximate analyses. The results were shown on the Flood Hazard Boundary Map for Whitfield County, Georgia (Reference 3) and are incorporated into this Flood Insurance Study.

The areas studied were selected with priority given to all known flood hazard areas and areas of projected development or proposed construction through December 1991. The scope and methods of study were proposed to and agreed upon by FEMA and Whitfield County, Georgia.

2.2 Community Description

Whitfield County is in northwest Georgia, approximately 80 miles northwest of Atlanta, Georgia. It is bordered on the north by Bradley County, Tennessee; on the east by Murray County, Georgia; on the south by Gordon County, Georgia; and on the west by Catoosa and Walker Counties, Georgia. The county is served by Interstate 75, U.S. Routes 41 and 76, State Routes 2, 3, 52, 71, 201, 286, and 401, and by the Norfolk Southern Railway and the CSX railroad. The 1984 population of Whitfield County was reported to be 67,700 (Reference 4). The major industries supporting the county's economy are textiles, apparel, furniture, and paper. The region enjoys a moderate climate with monthly averages ranging from 39 degrees Fahrenheit (°F) in January to 90°F in July. The average annual rainfall and snowfall are 49 inches and 3 inches, respectively.

2.3 Principal Flood Problems

Flood problems in Whitfield County are primarily due to the overflow of Mill Creek and Coahulla Creek. Located near the City of Dalton, Mill Creek presents severe flood hazards to business and property during a 100-year storm event. Coahulla Creek also experiences major flooding, but the degree of damage is less severe since little development exists within the floodplain.

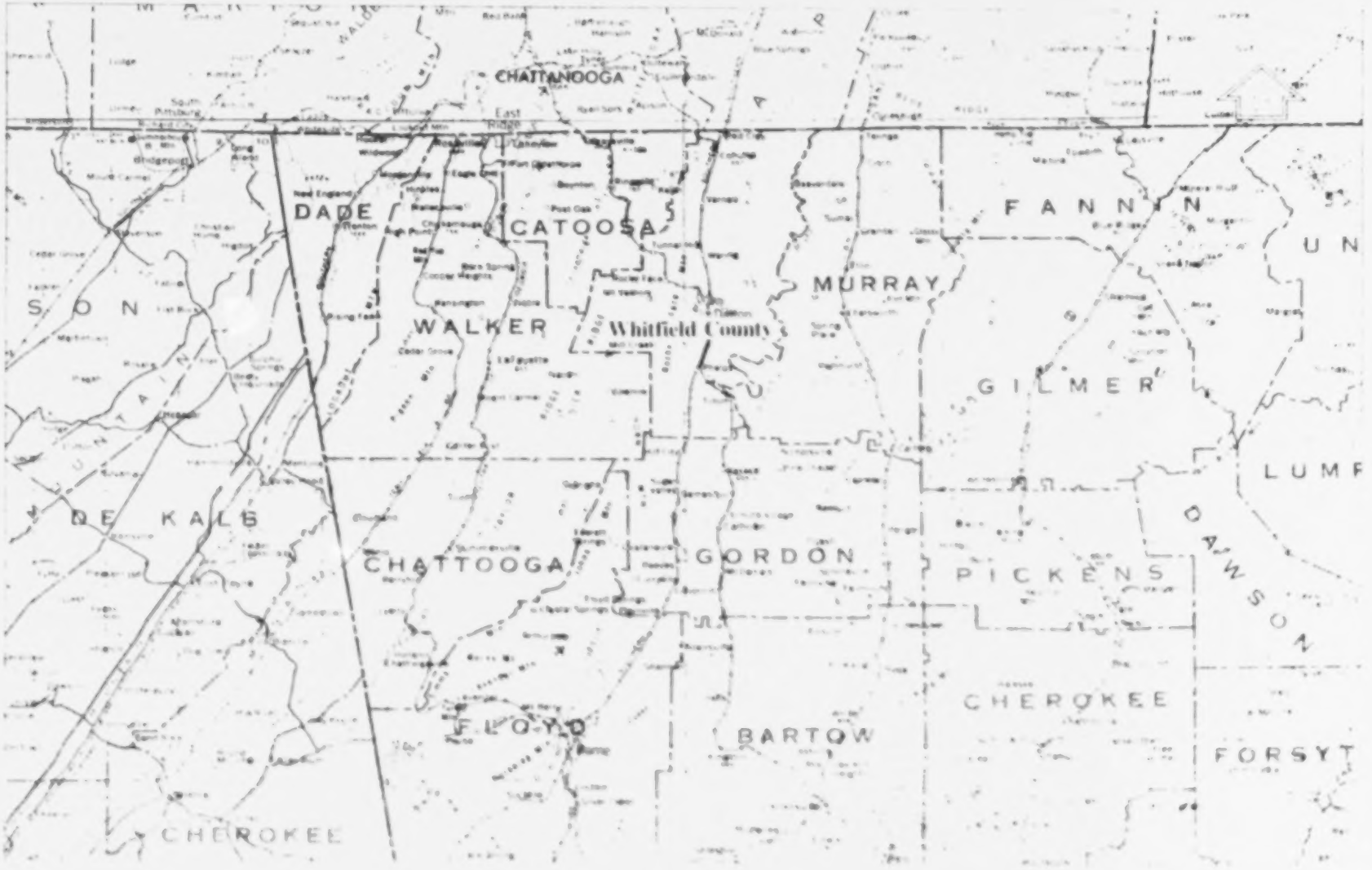


FIGURE 1

WHITFIELD COUNTY, GA
UNINCORPORATED AREAS

APPROXIMATE SCALE

VICINITY MAP

2.4 Flood Protection Measures

In March 1958, the U.S. Soil Conservation Service (SCS) conducted a study of Mill Creek (Reference 5), which resulted in the construction of five water-retarding structures, a municipal water storage structure, and 91,624 linear feet of channel improvements.

Because the degree of flood protection these structures provide is uncertain, they will not protect the community from major flood events such as the 100-year flood.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that is expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each riverine flooding source studied in detail affecting the community.

To define discharge-frequency data for East Chickamauga Creek, a regional relationship of peak discharge and drainage area was developed from analysis of records from gaging stations on streams in Catoosa County and on nearby streams with similar hydrologic characteristics (Reference 1). Frequency curves for these stream gage locations were computed using procedures outlined in Water Resources Council Bulletin No. 17, including the skew map of Plate 1 and adjustments for historic information, when available (Reference 1). The discharges for Coahulla Creek were developed from a comparison of a regional regression analysis with a log-Pearson Type III frequency analysis (Reference 6) based on available gage data. Discharges for Mill Creek, Slaughter Pen Creek, Drowning Bear Creek, and Tar Creek obtained from the Flood Insurance Study for the City of Dalton, Georgia (Reference 2) were verified using regional frequency techniques before being incorporated into this study. Additional discharge nodes,

developed using the regional frequency techniques, were added to the existing discharges developed for Mill Creek in the City of Dalton Flood Insurance Study. The discharge-frequency relationships for the remaining streams were determined using USGS regional regression equations (Reference 7). These discharges were adjusted using USGS techniques (Reference 8) for areas where significant urbanization has occurred. A detailed discussion of the methodology used in the hydrologic analyses is presented in "Hydrology Study for Unincorporated Whitfield County" (Reference 9).

Peak discharge-drainage area relationships for the 10-, 50-, 100-, and 500-year floods of each flooding source studied in detail in the community are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
MILL CREEK					
at mouth	52.8	6,240	9,380	10,780	14,600
at State Route 52	50.6	6,010	9,120	10,550	14,270
downstream of confluence of City Park Branch	44.5	5,210	8,020	9,330	12,730
downstream of confluence of Haig Mill Creek	38.4	4,720	7,290	8,500	11,630
at CSX railroad	23.0	3,170	5,020	5,910	8,210
about 2,400 feet downstream of Sam Lowe Road	17.8	2,510	3,820	4,320	5,800
LITTLE CREEK					
at New Ridge Road	4.0	490	1,360	1,560	2,100
about 1.1 miles upstream of southernmost Upper Ridge Road bridge	2.9	800	1,190	1,370	1,810
about 2.3 miles upstream of southernmost Upper Ridge Road bridge	1.6	520	770	890	1,170
DROWNING BEAR CREEK					
at Riverbend Road	14.5	3,180	4,760	5,490	7,400
at Antioch Road	11.5	3,070	4,520	5,170	6,900
upstream of confluence of Tar Creek	4.8	1,380	2,170	2,550	3,540
at U.S. Route 41	3.7	1,120	1,780	2,100	2,960

TABLE 1 - SUMMARY OF DISCHARGES (Continued)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
TAR CREEK					
downstream of confluence of Tar Creek Tributary	6.0	2,110	3,100	3,550	4,730
upstream of confluence of Tar Creek Tributary	4.7	1,730	2,560	2,950	3,970
LITTLE SWAMP CREEK					
at mouth	5.9	1,170	N/A	2,050	N/A
at CSX railroad	4.7	1,010	N/A	1,760	N/A
about 800 feet upstream of Norfolk Southern Railway	3.1	760	N/A	1,340	N/A
COAHULLA CREEK					
at Keith Road	176.0	12,190	N/A	20,530	N/A
at U.S. Route 76	119.0	9,300	N/A	15,730	N/A
at Dawnville Road	114.0	9,030	N/A	15,280	N/A
TAR CREEK TRIBUTARY					
at mouth	1.29	760	1,150	1,320	1,810
MCLELLAN CREEK					
at mouth	3.04	930	1,510	1,790	2,550
at Tibbs Road	1.71	580	990	1,190	1,750
EAST CHICKAMAUGA CREEK					
at confluence of Tanyard Creek	32.5	5,100	7,400	8,400	11,300
about 1.44 miles upstream of Cottonwood Road	30.5	4,900	7,100	8,100	11,000
SLAUGHTER PEN CREEK					
at mouth	0.95	570	890	1,030	1,440

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Cross sections for East Chickamauga Creek were field surveyed. Cross sections for all other streams studied in detail were developed from aerial photography (Reference 10). The below-water sections were obtained by field measurement. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles and on the Flood Insurance Rate Map.

Roughness coefficients (Manning's "n") used in the hydraulic computations were chosen by engineering judgement and based on field observations. Roughness values used for the channel of Mill Creek ranged from 0.030 to 0.045 and for the channel of East Chickamauga Creek the values ranged from 0.018 to 0.082. Channel roughness factors for other streams studied ranged from 0.035 to 0.045. Overbank values for all streams ranged from 0.06, where the floodplain was grassed pasture land and relatively clear of obstructions, to 0.185, where heavy forest and underbrush occurred. Water-surface elevations of floods of the selected recurrence intervals were computed using the HEC-2 step-backwater computer program (Reference 11).

Flood profiles were drawn showing the computed water-surface elevations for floods of the selected recurrence intervals. In cases where the 50- and 100-year flood elevations are close together, due to limitations of the profile scale, only the 100-year profile has been shown.

The hydraulic analyses for this study are based on the effects of unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the map and described in the exhibit labeled Elevation Reference Marks.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using

topographic maps at a scale of 1:4800 with a contour interval of 4 feet (Reference 12).

The 100-year and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map. On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, AE, AH, AO, A99, V, and VE) and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary was delineated using the Flood Hazard Boundary Map for Whitfield County, Georgia (Reference 3).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces the flood-carrying capacity, increases the flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways for this study were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections and are shown in Table 2, Floodway Data. The computed floodways are shown on the Flood Insurance Rate Map. In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown. Portions of the floodways for Mill Creek, Drowning Bear Creek, East Chickamauga Creek, Slaughter Pen Creek, and Tar Creek lie outside the county boundary.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
MILL CREEK								
A	2140	658	4008	2.7	682.9	677.2[4]	678.0	0.8
B	4410	933	3909	2.8	682.9	679.8[4]	680.4	0.6
C	6820	353	3302	3.2	682.9	682.6[4]	682.9	0.3
D	9130	610	4191	2.5	683.9	683.9	684.9	0.3
E	9940	746	5589	1.8	687.0	687.0	687.3	0.3
F	12,345	726[2]	6264	1.7	687.7	687.7	688.1	0.4
G	13,320	450	3726	2.8	688.0	688.0	688.4	0.4
H	15,580	367	2804	3.8	689.6	689.6	690.2	0.6
I	16,940	568	4198	2.5	691.3	691.3	692.1	0.8
J	18,825	481	3812	2.8	692.2	692.2	693.1	0.9
K	22,780	762[3]	3845	2.4	694.6	694.6	695.5	0.9
L	26,630	160[3]	1484	6.3	702.1	702.1	702.1	0.0
M	33,130	571[3]	3870	2.4	709.1	709.1	709.3	0.2
N	34,430	361	3012	2.8	709.9	709.9	710.3	0.4
O	37,260	428	4335	2.0	713.9	713.9	714.5	0.6
P	38,400	221	2004	4.2	715.3	715.3	716.2	0.9
Q	42,250	711	6174	1.4	720.1	720.1	720.4	0.3
R	45,600	100	1289	1.4	725.4	725.4	725.4	0.0
S	46,685	56	879	6.7	725.7	725.7	726.5	0.8
T	49,565	155	2864	2.1	738.4	738.4	738.4	0.0
U	50,520	149	1907	3.1	738.4	738.4	738.6	0.2
V	51,380	177	2675	2.2	739.0	739.0	739.1	0.1
W	52,195	123	1619	3.7	739.1	739.1	739.4	0.3
X	53,780	240	2795	2.1	739.7	739.7	740.2	0.5
Y	56,330	345	3662	1.2	740.1	740.1	740.9	0.8
Z	58,690	329	2076	2.1	740.6	740.6	741.6	1.0

[1] FEET ABOVE MOUTH
[2] THIS WIDTH EXTENDS INTO AREA NOT INCLUDED
[3] THIS WIDTH IS IN AREA NOT INCLUDED
[4] ELEVATIONS WITHOUT CONSIDERING BACKWATER EFFECT FROM COAHULA CREEK

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GEORGIA
(UNINCORPORATED AREAS)

FLOODWAY DATA

MILL CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
MCLELLAN CREEK								
A	3456	340[3]	350	4.3	727.2	727.2	727.2	0.0
B	6286	74	302	3.9	744.3	744.3	745.2	0.9
TAR CREEK								
A	430	337	2213	1.6	687.8	687.0[5]	688.0	1.0
B	3850	241	1177	3.0	689.7	689.7	690.6	0.9
C	5670	192	853	3.5	695.1	695.1	696.1	1.0
D	10,774	154	319	6.5	719.8	719.8	719.8	0.0
E	12,886	228	1255	1.7	728.1	728.1	729.1	1.0
TAR CREEK TRIBUTARY								
A	2850	135[3]	433	1.6	700.7	700.7	701.7	1.0
SLAUGHTER PEN CREEK								
A	194	101	512	2.0	689.4	684.5[6]	685.3	0.8
EAST CHICKAMAUGA CREEK								
A	8.97[2]	450[4]	3950	2.1	808.0	808.0	808.5	0.5

[1]FEET ABOVE MOUTH
[2]MILES ABOVE MOUTH
[3]THIS WIDTH EXTENDS WITHIN AREA NOT INCLUDED
[4]THIS WIDTH EXTENDS BEYOND COUNTY BOUNDARY
[5]ELEVATION WITHOUT CONSIDERING BACKWATER EFFECTS FROM DROWNING BEAR CREEK
[6]ELEVATION WITHOUT CONSIDERING BACKWATER EFFECTS FROM MILL CREEK

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GEORGIA
(UNINCORPORATED AREAS)

FLOODWAY DATA

MCLELLAN CREEK–TAR CREEK–TAR CREEK TRIBUTARY–SLAUGHTER PEN CREEK–EAST CHICKAMAUGA CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET/SECOND)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
[illegible]								
[illegible]								
[illegible]								
C	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
E	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
F	16,930	75	[illegible]	5.7	[illegible]	[illegible]	643.1	[illegible]
G	[illegible]	48	[illegible]	[illegible]	[illegible]	[illegible]	648.2	[illegible]
H	19,030	56	[illegible]	[illegible]	[illegible]	[illegible]	706.0	[illegible]
I	19,440	55	423	1.4	707.5	71[illegible].4	707.[illegible]	[illegible]
J	20,190	50	300	2.0	707.[illegible]	[illegible].8	708.[illegible]	[illegible]
DROWNING BEAR CREEK								
A	14,255	560	3342	1.6	677.8	677.8	678.2	0.4
B	15,280	878	5625	1.0	678.1	678.1	678.5	0.4
C	18,555	483	2221	2.5	684.0	684.0	684.6	0.6
D	20,750	665	6084	0.8	687.7	687.7	687.9	0.2
E	22,125	739	4690	1.1	687.8	687.8	688.0	0.2
F	25,335	250	726	3.5	693.2	693.2	693.7	0.5
G	29,770	76	349	7.3	714.6	714.6	715.2	0.6
H	32,260	115	558	3.8	722.2	722.2	722.3	0.1

[illegible] FEET ABOVE MOUTH
[illegible] THIS WIDTH EXTENDS WITHIN AREA NOT INCLUDED

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GA
(UNINCORPORATED AREAS)

FLOODWAY DATA

LITTLE CREEK—DROWNING BEAR CREEK

Along streams where floodways have not been computed, the community must ensure that the cumulative effect of development in the floodplain will not cause more than a 1.0-foot increase in the base flood elevations at any point within the community.

The area between the floodway and the 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

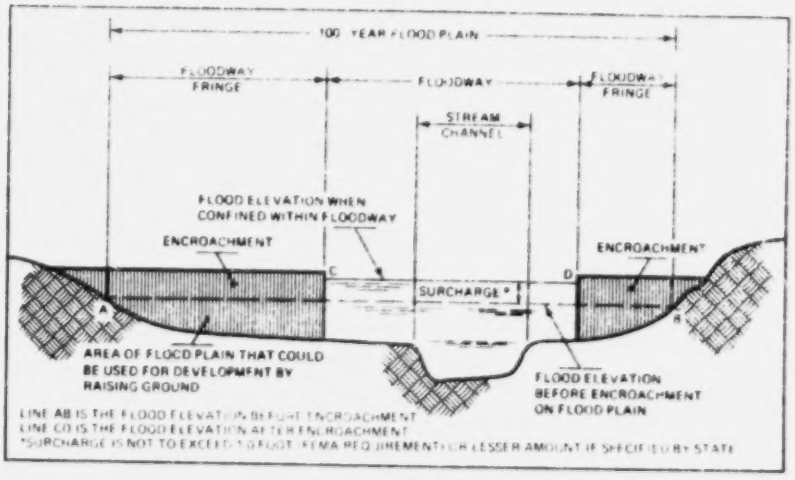

100 YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE *
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE AB IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE CD IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE IS NOT TO EXCEED 1.0 FOOT, FEMA REQUIREMENT OR LESSER AMOUNT IF SPECIFIED BY STATE

FIGURE 2 - Floodway Schematic

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 100-year floodplain, areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols the 100- and 500-year floodplains, the floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

7.0 OTHER STUDIES

Flood Insurance Studies published for Catoosa and Walker Counties, Georgia (References 1 and 13) are in agreement with this study.

A revision to the published Flood Insurance Study for the City of Dalton, Georgia (Reference 2) is in progress and in agreement with this study.

The Flood Insurance Study in progress for Murray County, Georgia (Reference 14) is in agreement with this study.

This Flood Insurance Study supersedes the previously printed Flood Hazard Boundary Map for Whitfield County, Georgia (Reference 3).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, 1371 Peachtree Street, NE., Suite 736, Atlanta, Georgia 30309.

Future revisions may be made that do not result in the republishing of the Flood Insurance Study report. To assure that any user is aware of all revisions, it is advisable to contact the map repository of flood hazard data located in the community.

9.0 REFERENCES AND BIBLIOGRAPHY

1. Federal Emergency Management Agency, Flood Insurance Study, Catoosa County, Unincorporated Areas, Georgia, July 1984.

2. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, City of Dalton, Whitfield County, Georgia, June 1979, revision in progress.

3. Federal Emergency Management Agency, Federal Insurance Administration, Flood Hazard Boundary Map, Whitfield County, Unincorporated Areas, Georgia, July 1987.

4. University of Georgia, Cooperative Extension Service, The Georgia County Guide, 1984.

5. U.S. Soil Conservation Service, Coosa River Soil and Water Conservation District, Watershed Work Plan for Mill Creek Watershed, Walker and Whitfield Counties, Georgia, March 1958.

6. U.S. Department of the Interior, Geological Survey, Interagency Advisory Committee on Water Data, Office of Water Data Coordination, Hydrology Subcommittee, Bulletin No. 17B, Guidelines for Determining Flood Flow Frequency, September 1981, revised March 1982.

7. U.S. Department of the Interior, U.S. Geological Survey, Water Resources Investigations Report 78-137, Floods in Georgia, Magnitude and Frequency: Techniques for Estimating the Magnitude and Frequency of Floods in Georgia with Compilation of Flood Data through 1974, McGlone Price, October 1979.

8. ----------, U.S. Geological Survey, Water Supply Paper 2207, Flood Characteristics of Urban Watersheds in the United States, Techniques for Estimating Magnitude and Frequency of Urban Floods, V.B. Sauer, W.O. Thomas Jr., V.A. Stricker, and K.V. Wilson, 1983.

9. Post, Buckley, Schuh & Jernigan, Inc., Hydrology Study for Unincorporated Whitfield County, Atlanta, Georgia, March 1986.

10. Woolpert Consultants, Aerial Photographs, Whitfield County, Georgia, Scale 1:14400, Mobile, Alabama, 1986.

11. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Computer Program 723-X6-L202A, Davis, California, April 1984.

12. Woolpert Consultants, Topographic Maps, Whitfield County, Georgia, Scale 1:4800, Contour Interval 4 Feet: Mobile, Alabama, 1986.

13. ————, Flood Insurance Study, Walker County, Unincorporated Areas, Georgia, October 1982.

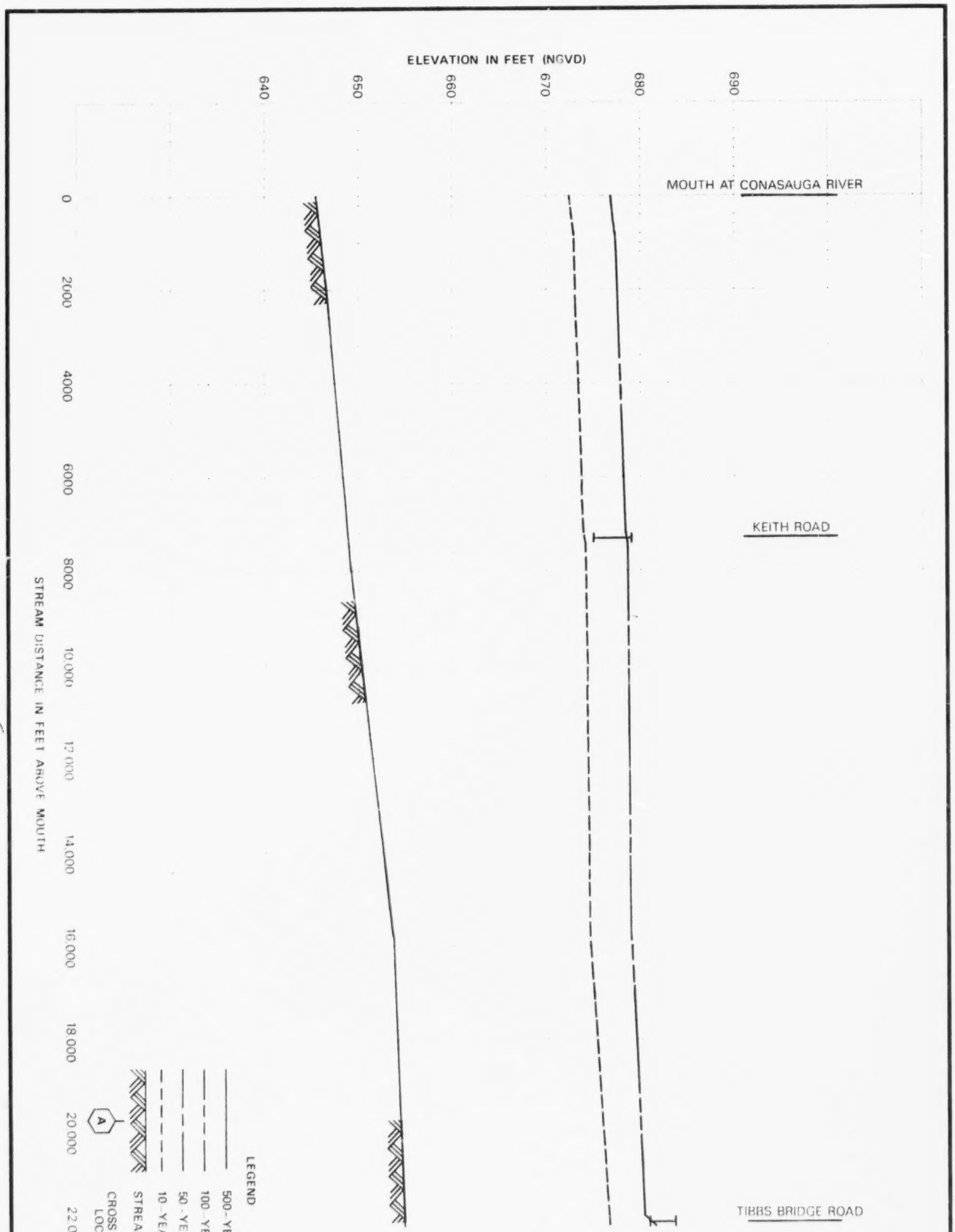
14. ————, Flood Insurance Study, Murray County, Unincorporated Areas, Georgia, in progress.

ELEVATION REFERENCE MARKS

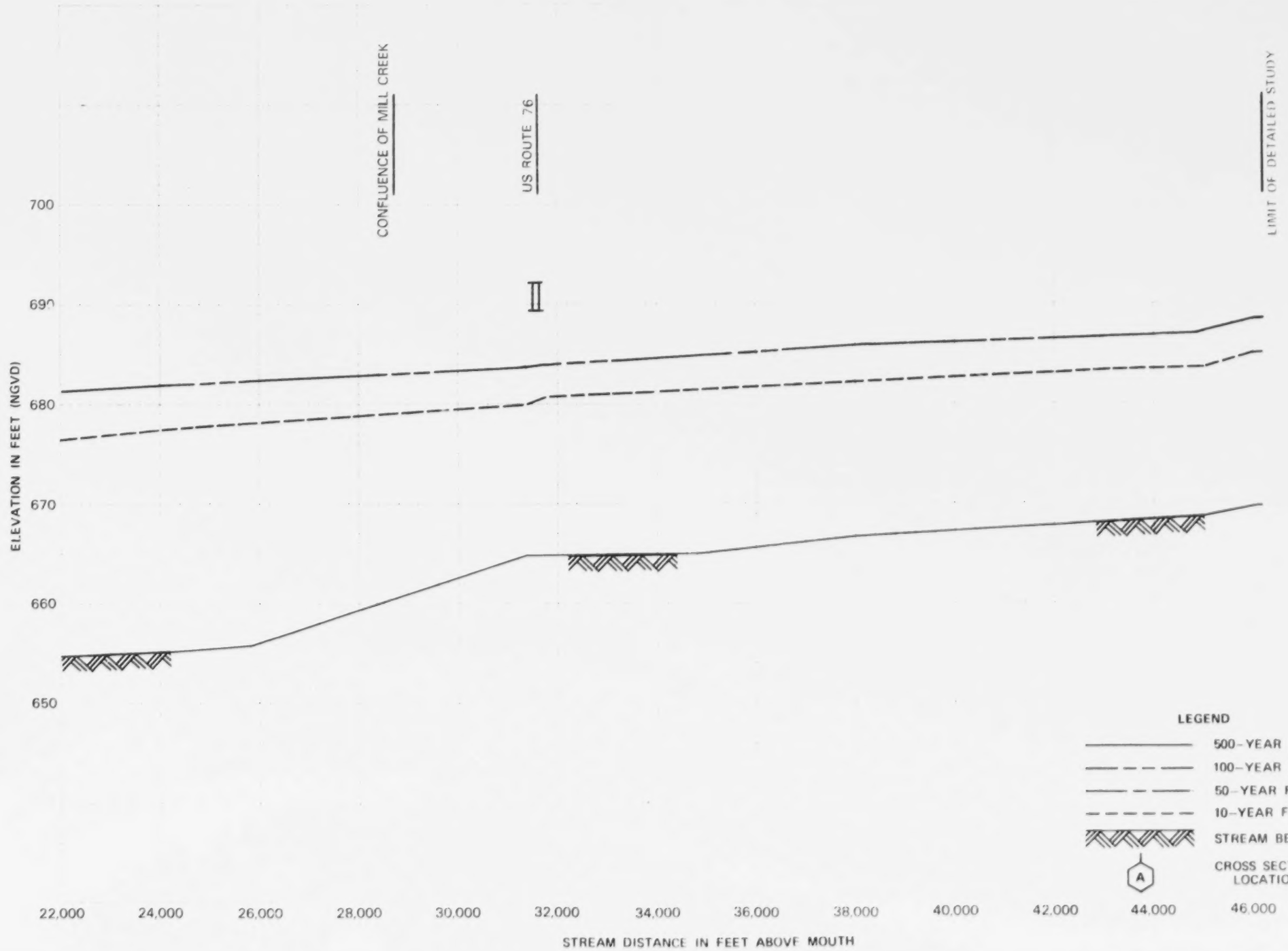
REFERENCE MARK	FLOOD INSURANCE RATE MAP PANEL	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
1	0095	743.37	chiseled square on downstream side of concrete abutment at west end of U.S. Route 41 bridge over Mill Creek
2	0095	728.42	chiseled square on downstream side of concrete abutment at west end of CSX railroad bridge over Mill Creek
3	0115	736.33	chiseled square on downstream side of concrete abutment at north end of Connector Road bridge over Mill Creek
4	0115	703.98	chiseled square on downstream side of concrete abutment at north end of Cleveland Highway bridge over Mill Creek
5	0120	689.64	chiseled square on downstream concrete guardrail at east end of Underwood Street bridge over Mill Creek
6	0120	691.55	chiseled square on downstream side of concrete abutment at east end of U.S. Route 76 bridge over Mill Creek
7	0176	729.09	chiseled square on downstream side of concrete abutment at north end of U.S. Route 41 bridge over Drowning Bear Creek
8	0177	695.05	chiseled square in concrete bridge slab located at northeast corner of Abutment Road bridge over Drowning Bear Creek
9	0177	683.85	chiseled square in concrete abutment at northeast corner of Antioch Road bridge over Drowning Bear Creek
10	0177	678.56	chiseled square on top of downstream concrete guardrail at northeast corner of River Bend Road bridge over Drowning Bear Creek

ELEVATION REFERENCE MARKS (Continued)

REFERENCE MARK	FLOOD INSURANCE RATE MAP PANEL	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
11	0181	662.20	paint spot on centerline of Ridge Road over corrugated metal pipe culvert for Little Creek
12	0181	731.39	top of bolt between "CHATT" and "ANOOGA" on fire hydrant located at southwest corner of intersection of Hill Road and Eastbrook Road



01P	WHITFIELD COUNTY, GA (UNINCORPORATED AREAS)	FLOOD PROFILES COAHULLA CREEK



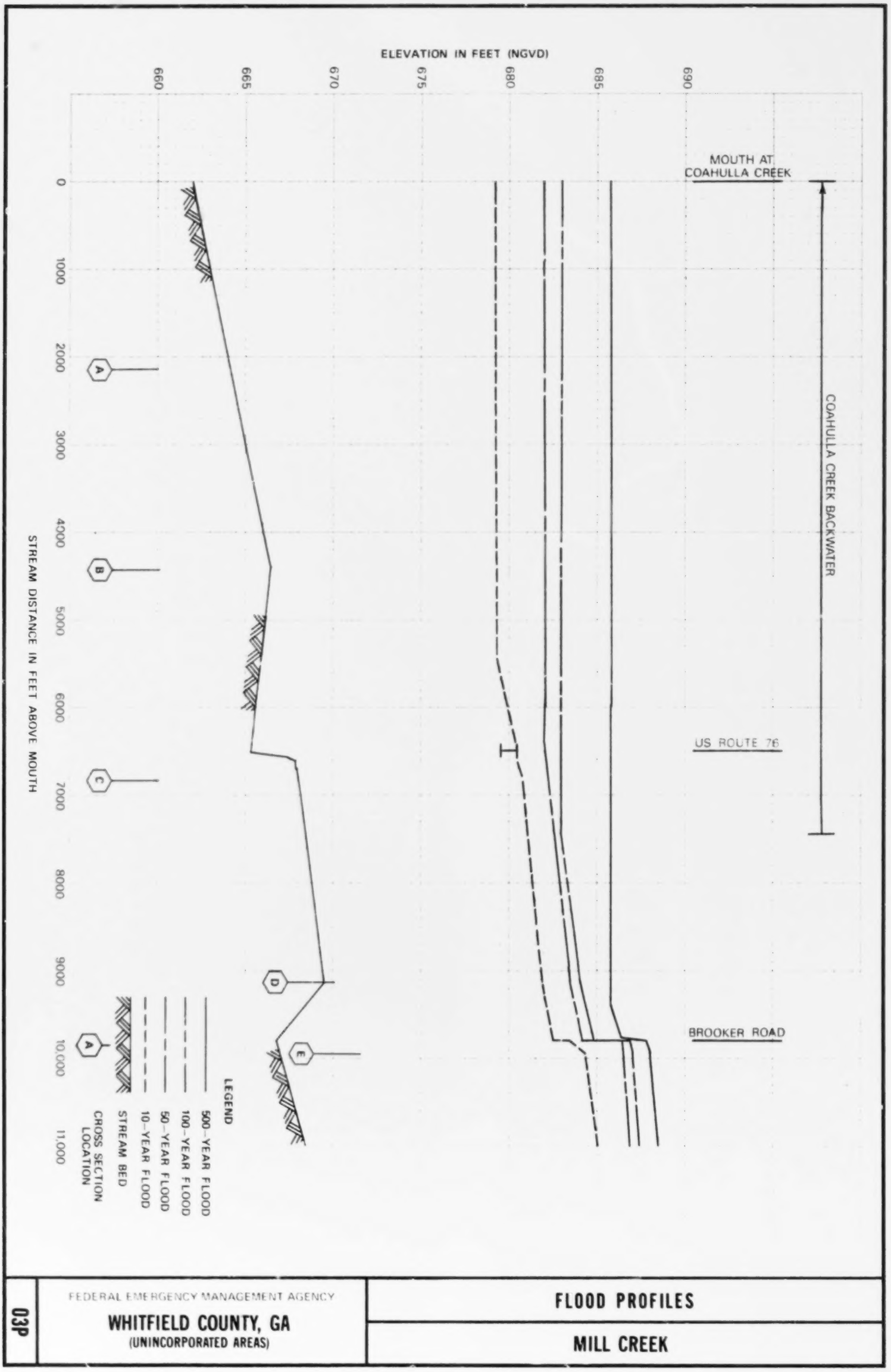
FLOOD PROFILES

COAHULLA CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GA
(UNINCORPORATED AREAS)

02P



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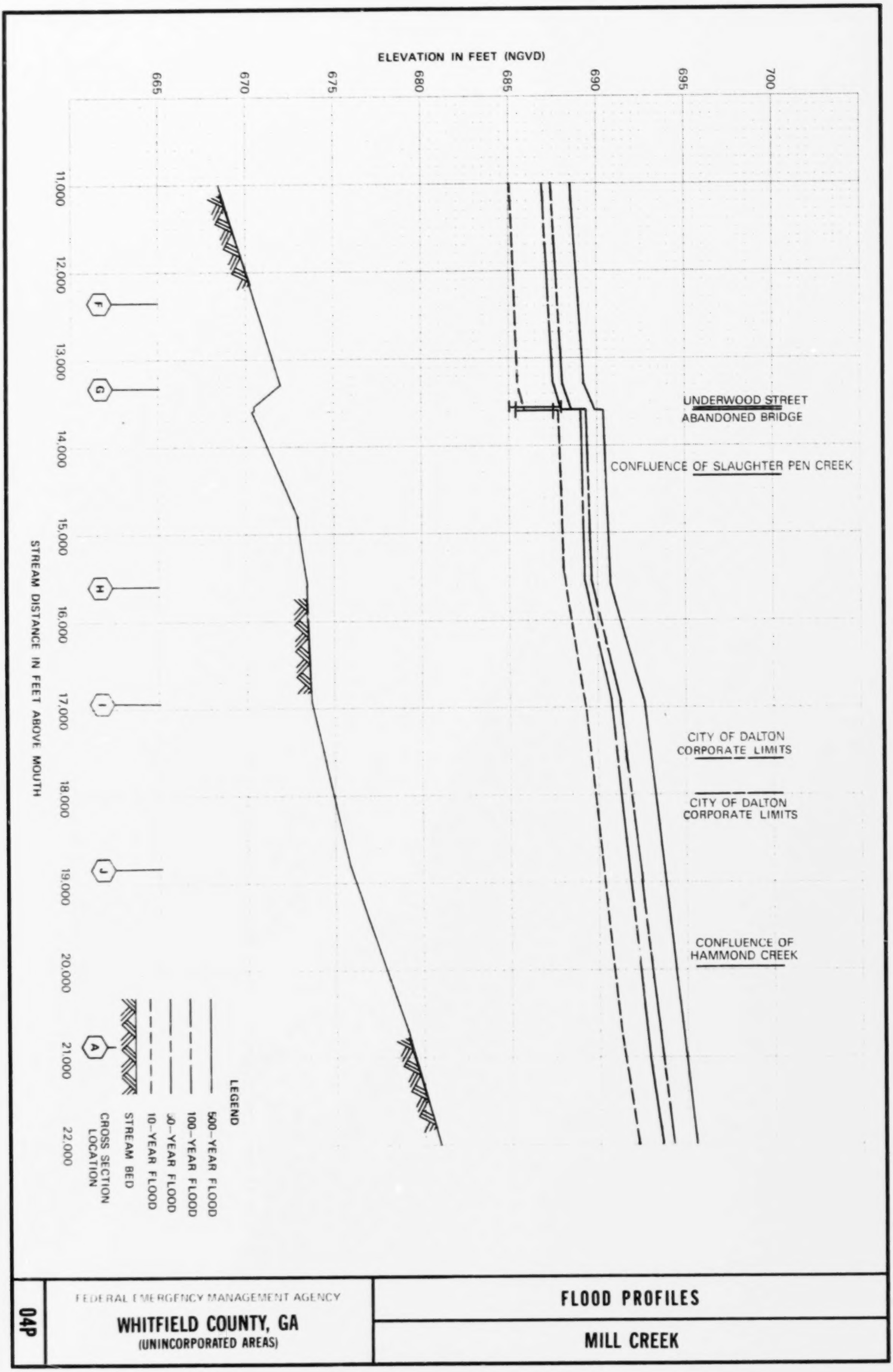

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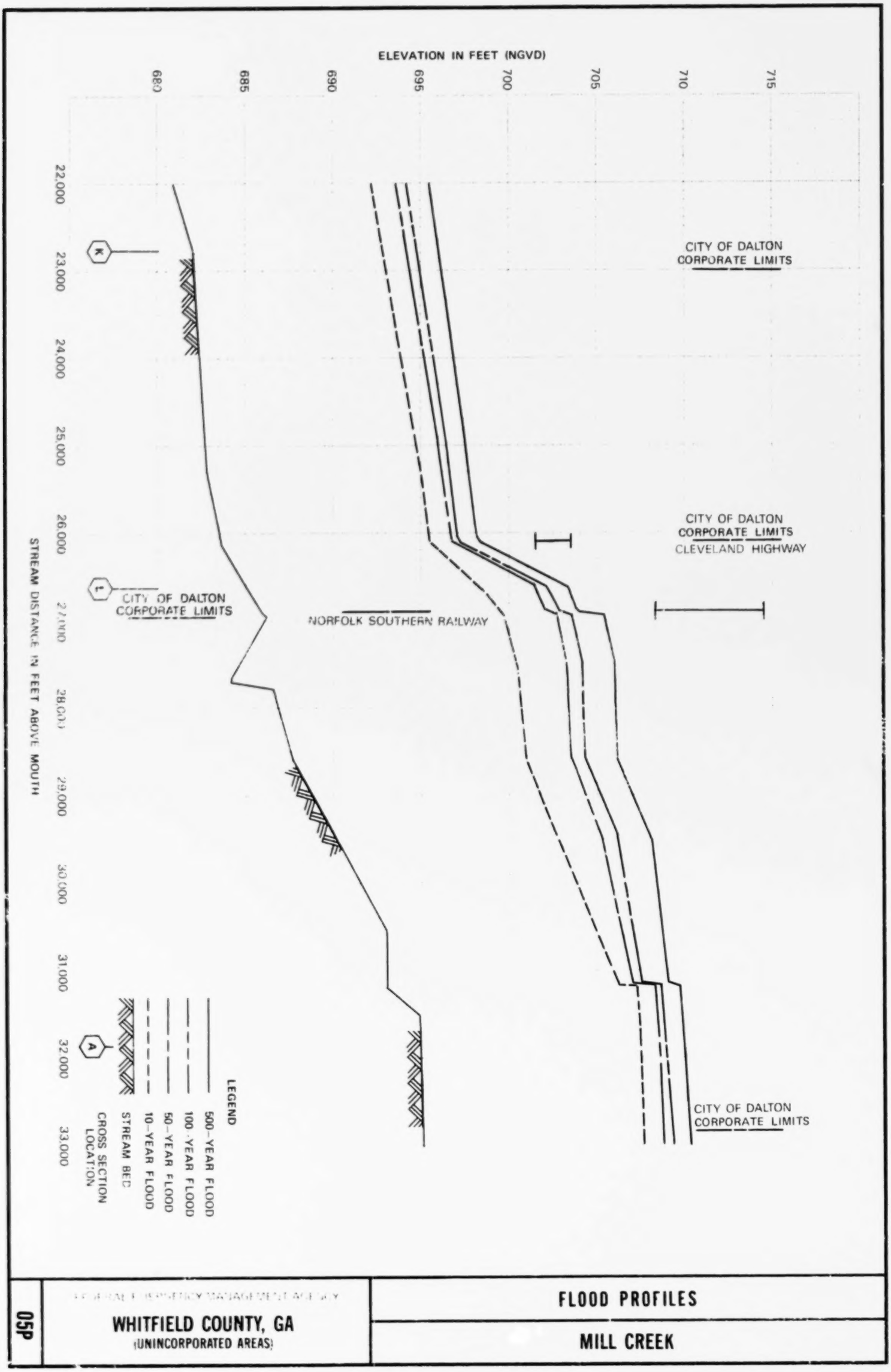
04P

FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GA
(UNINCORPORATED AREAS)

FLOOD PROFILES

MILL CREEK



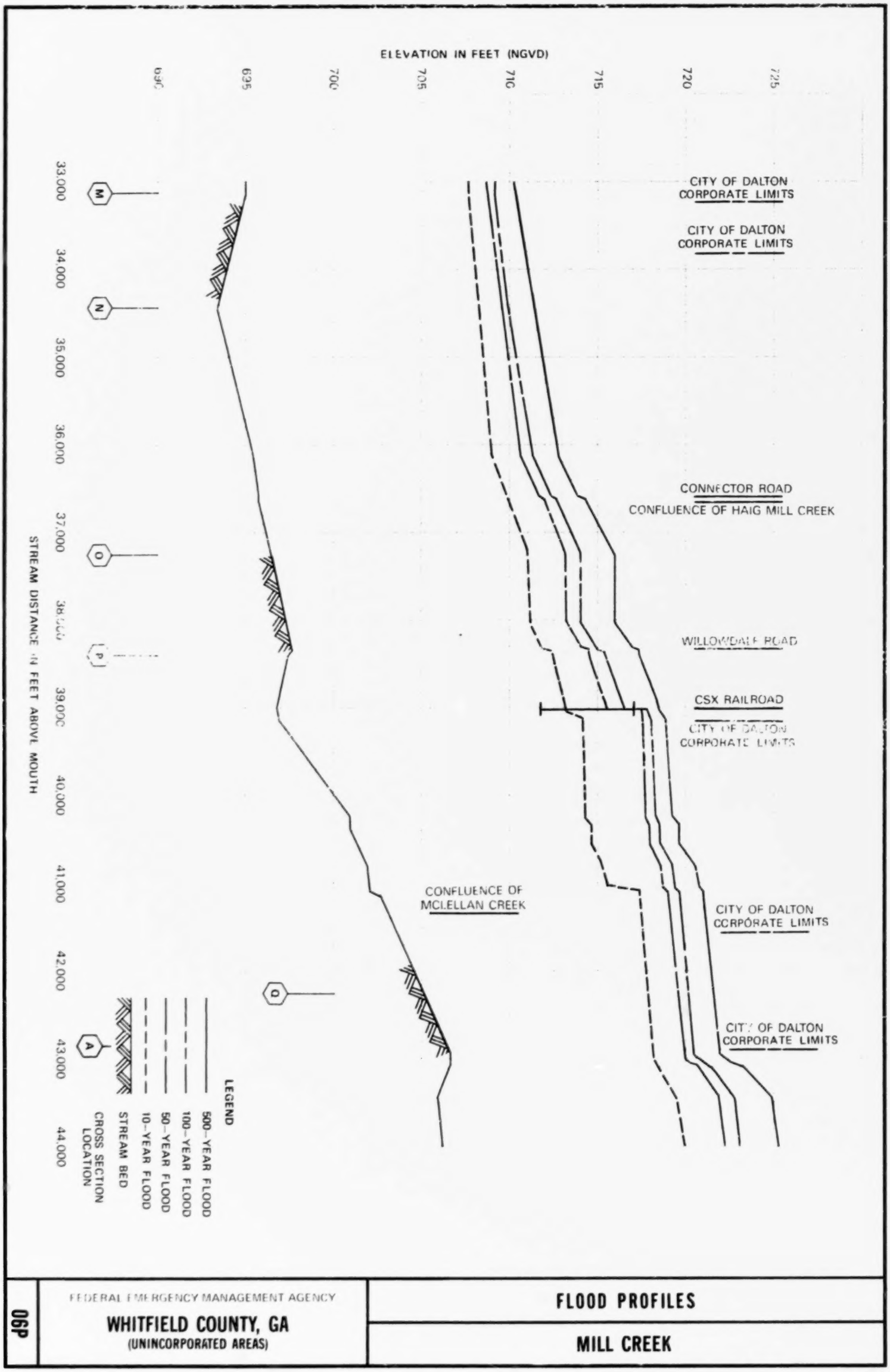
05P

FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GA
(UNINCORPORATED AREAS)

FLOOD PROFILES

MILL CREEK



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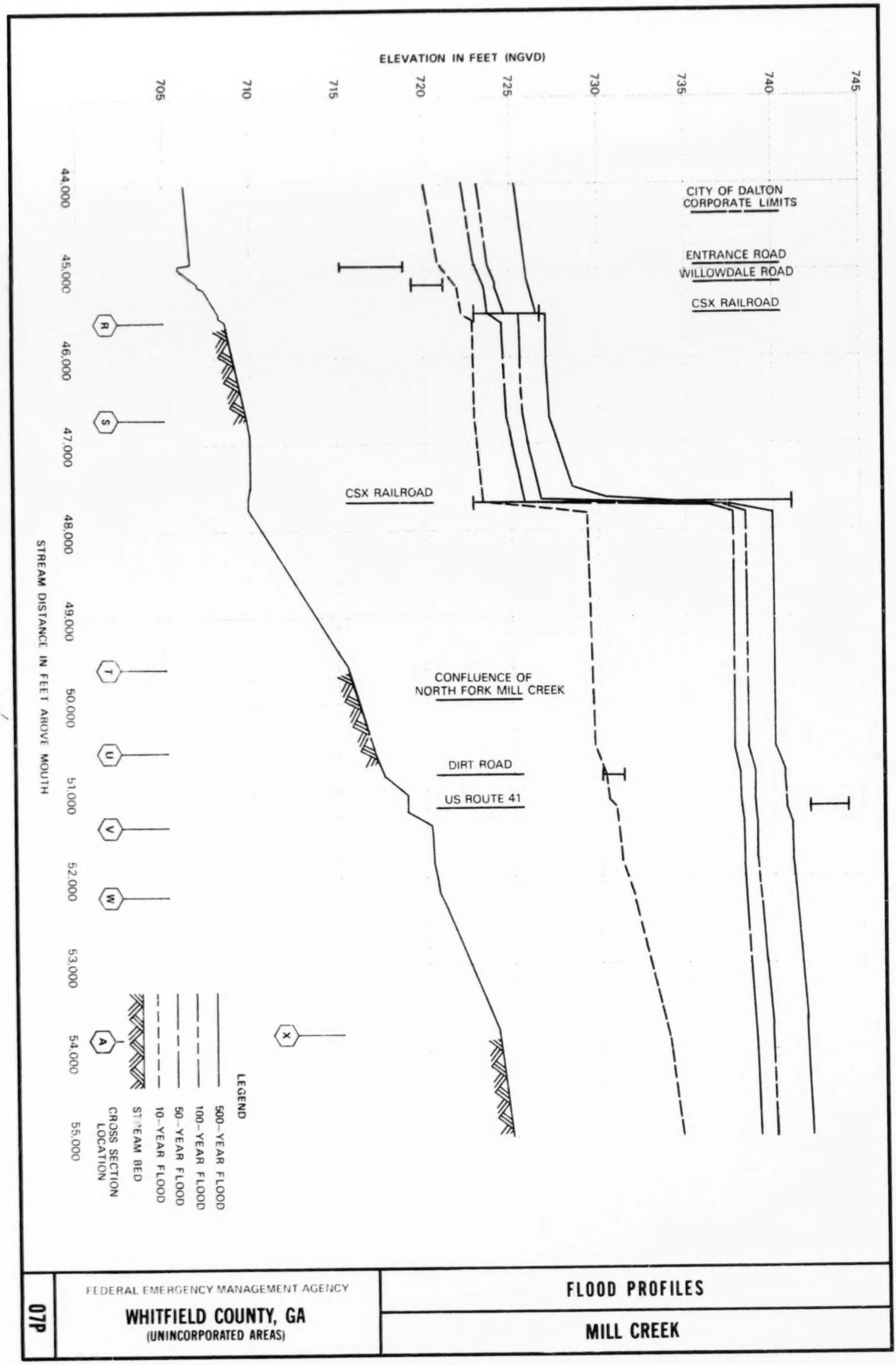

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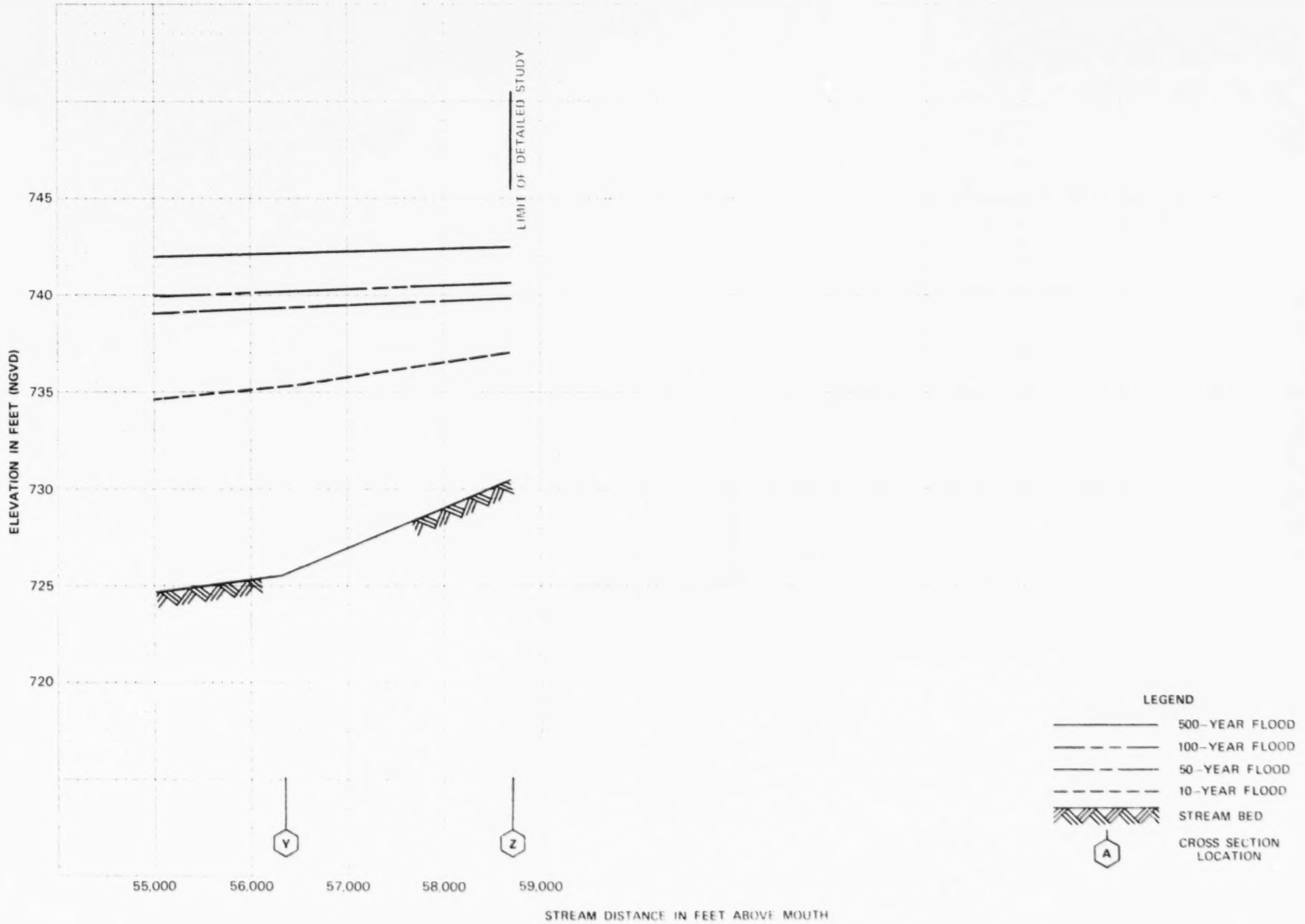


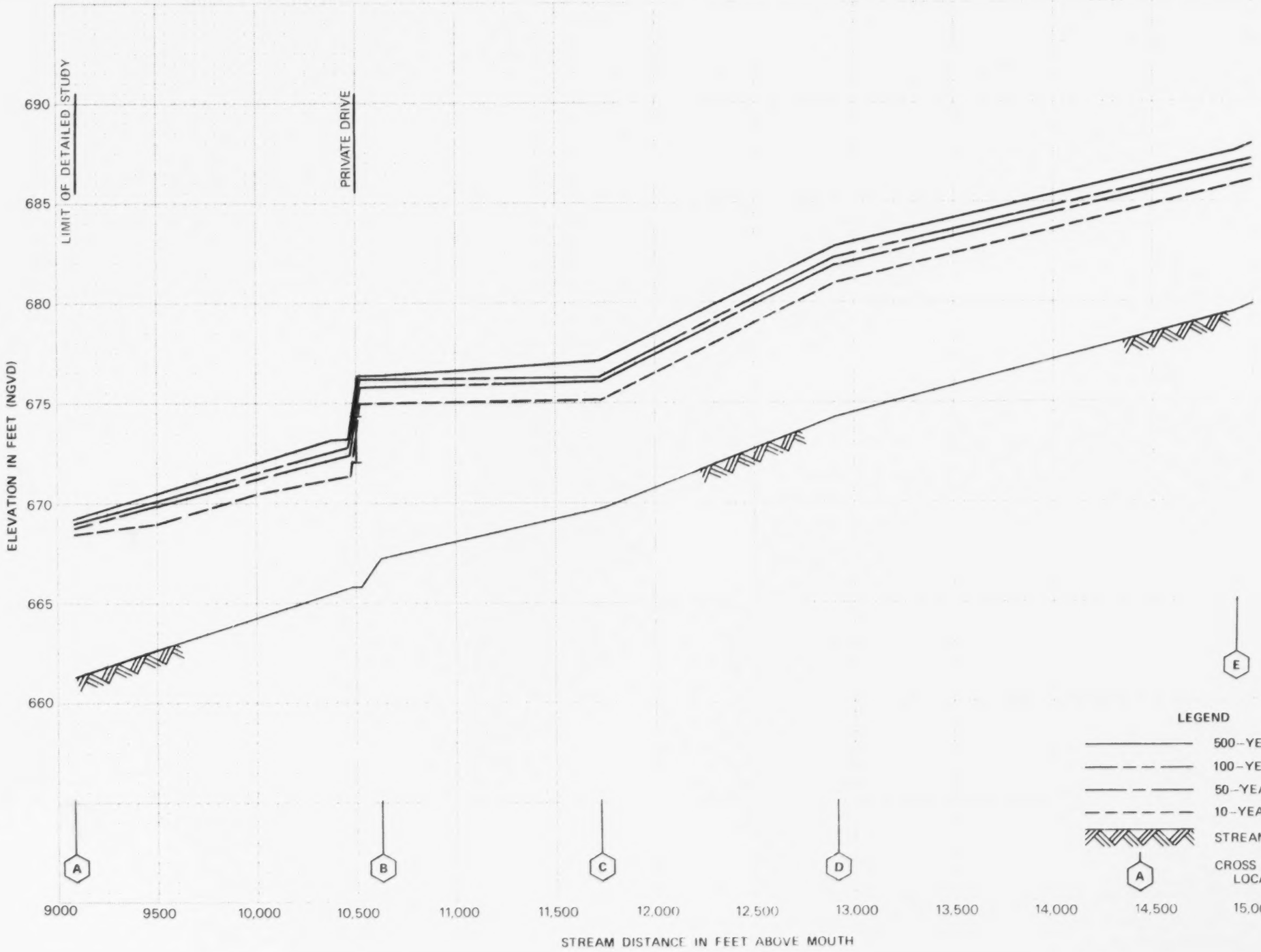
FLOOD PROFILES

MILL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GA
(UNINCORPORATED AREAS)

08P



FLOOD PROFILES

LITTLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GA
(UNINCORPORATED AREAS)

09P

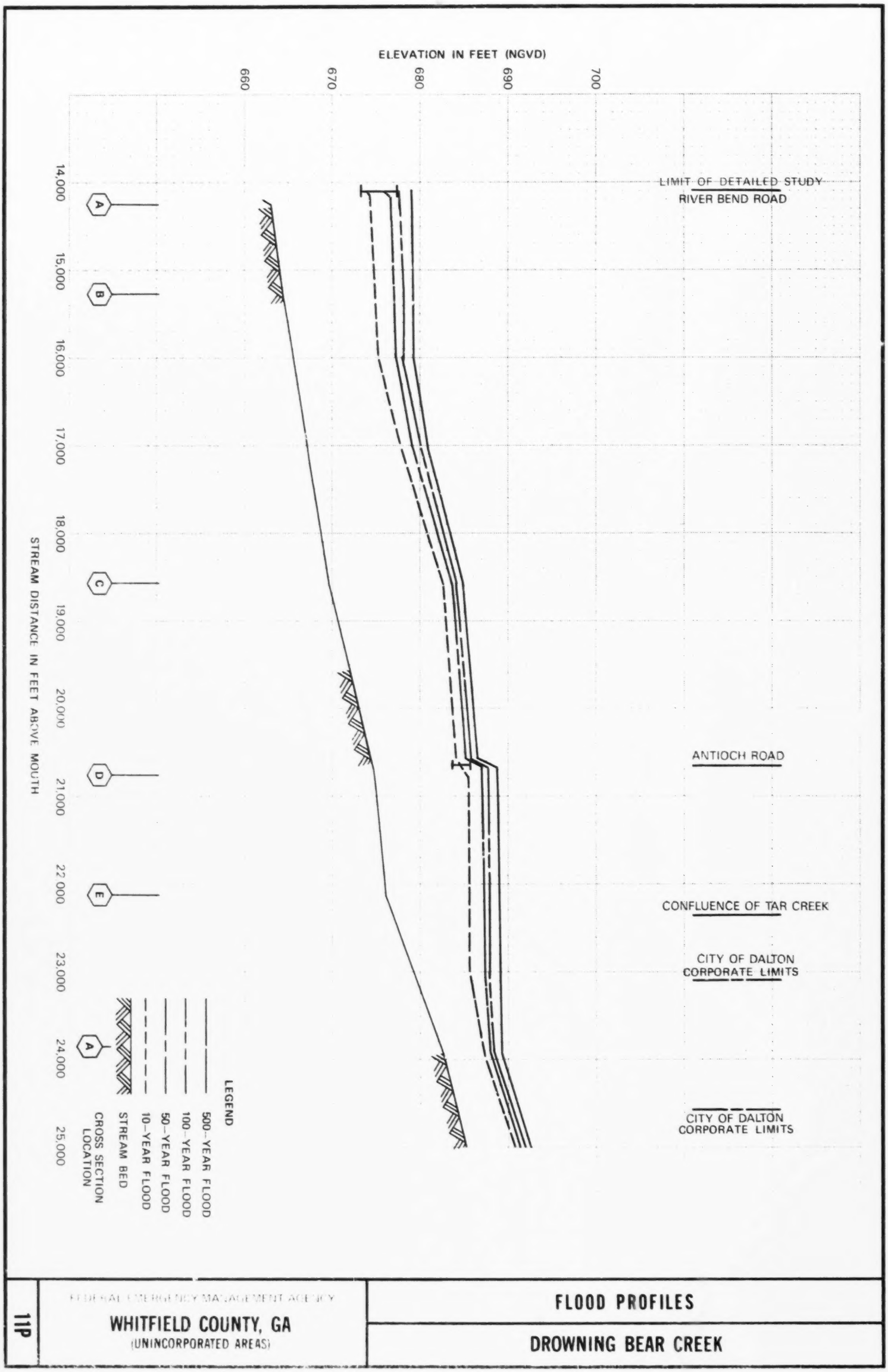
FLOOD PROFILES

LITTLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GA
(UNINCORPORATED AREAS)

10P



11P

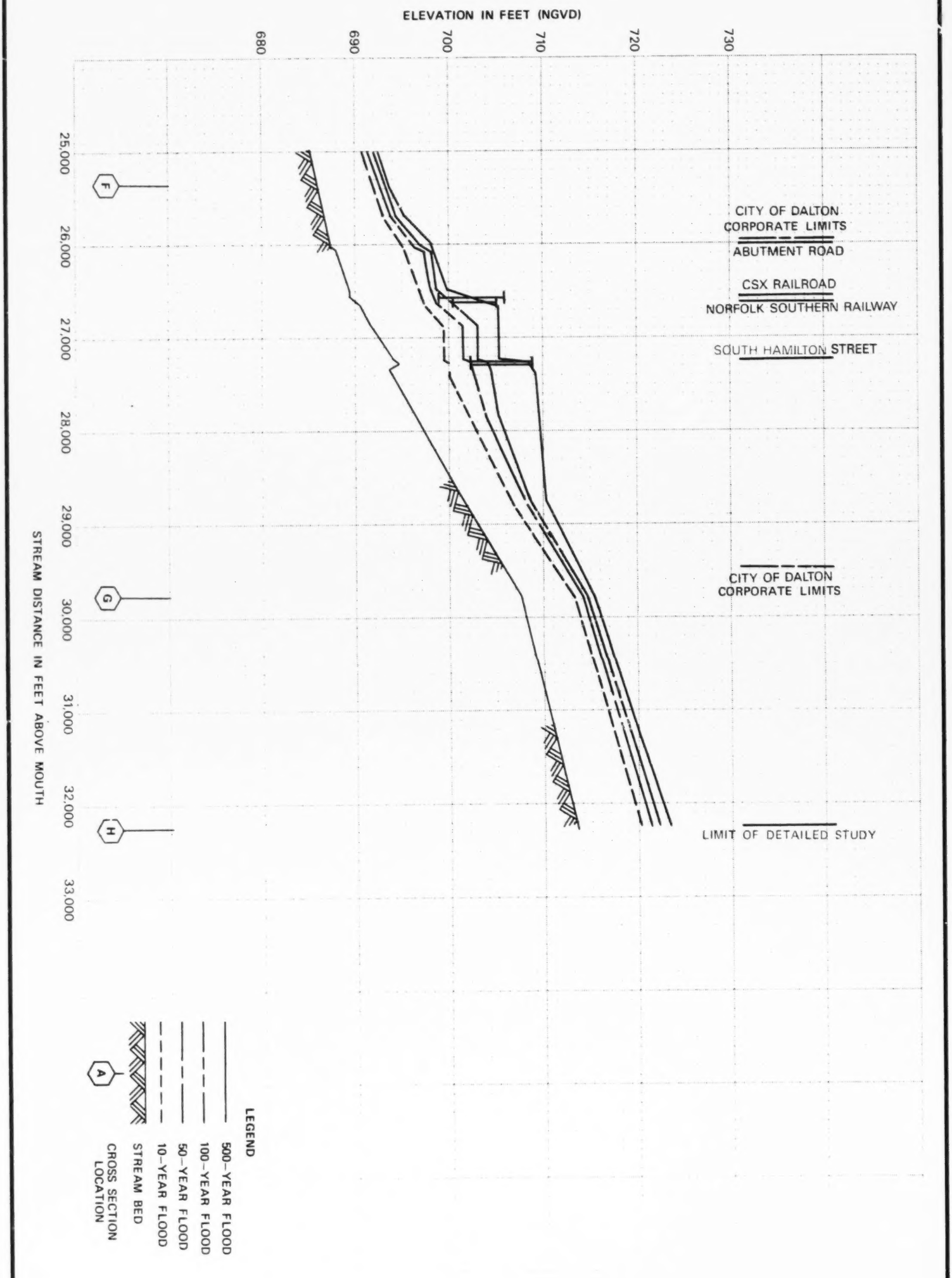
FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GA

(UNINCORPORATED AREAS)

FLOOD PROFILES

DROWNING BEAR CREEK



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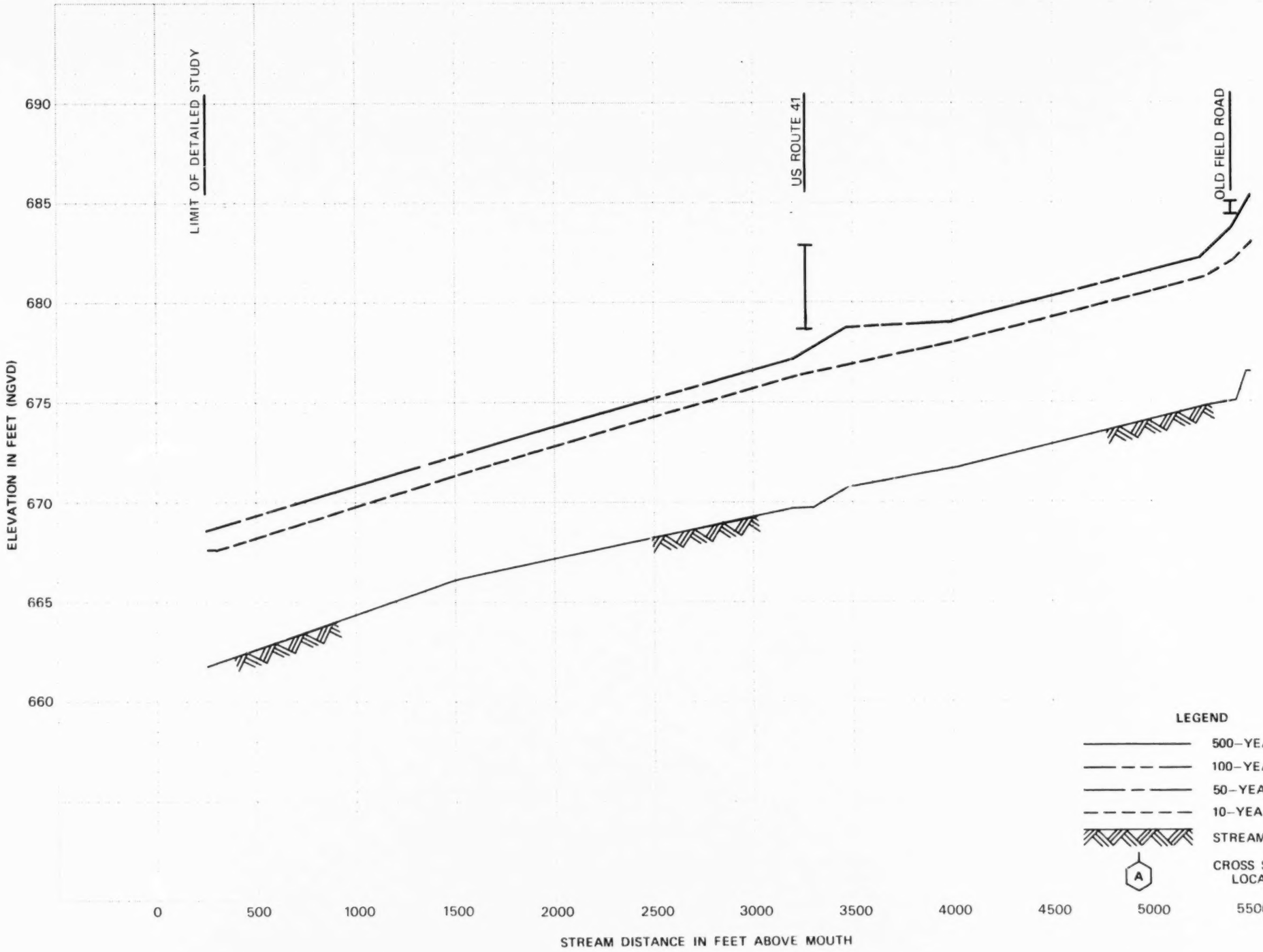
12P

FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GA
(UNINCORPORATED AREAS)

FLOOD PROFILES

DROWNING BEAR CREEK



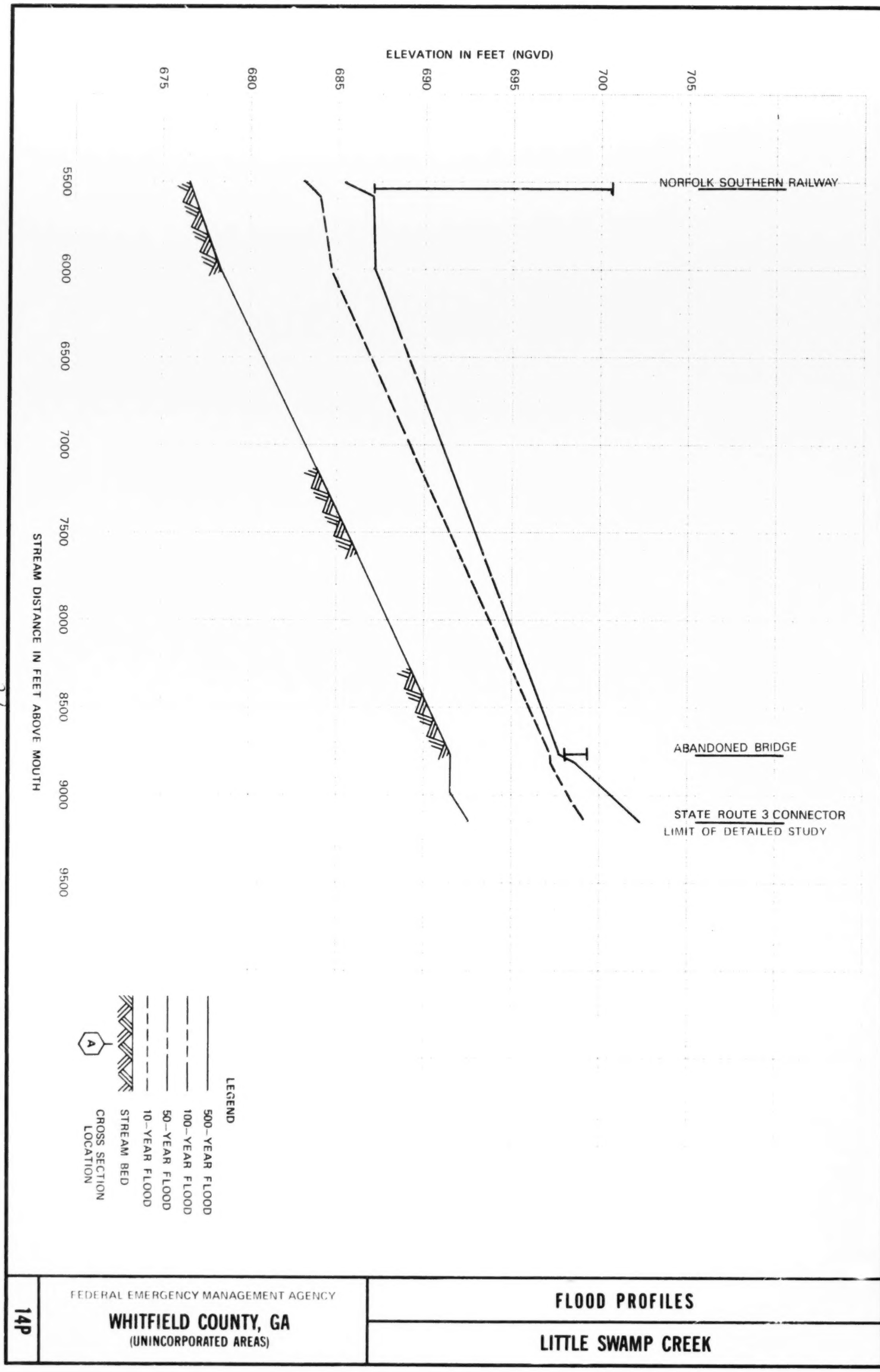
FLOOD PROFILES

LITTLE SWAMP CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GA
(UNINCORPORATED AREAS)

13P



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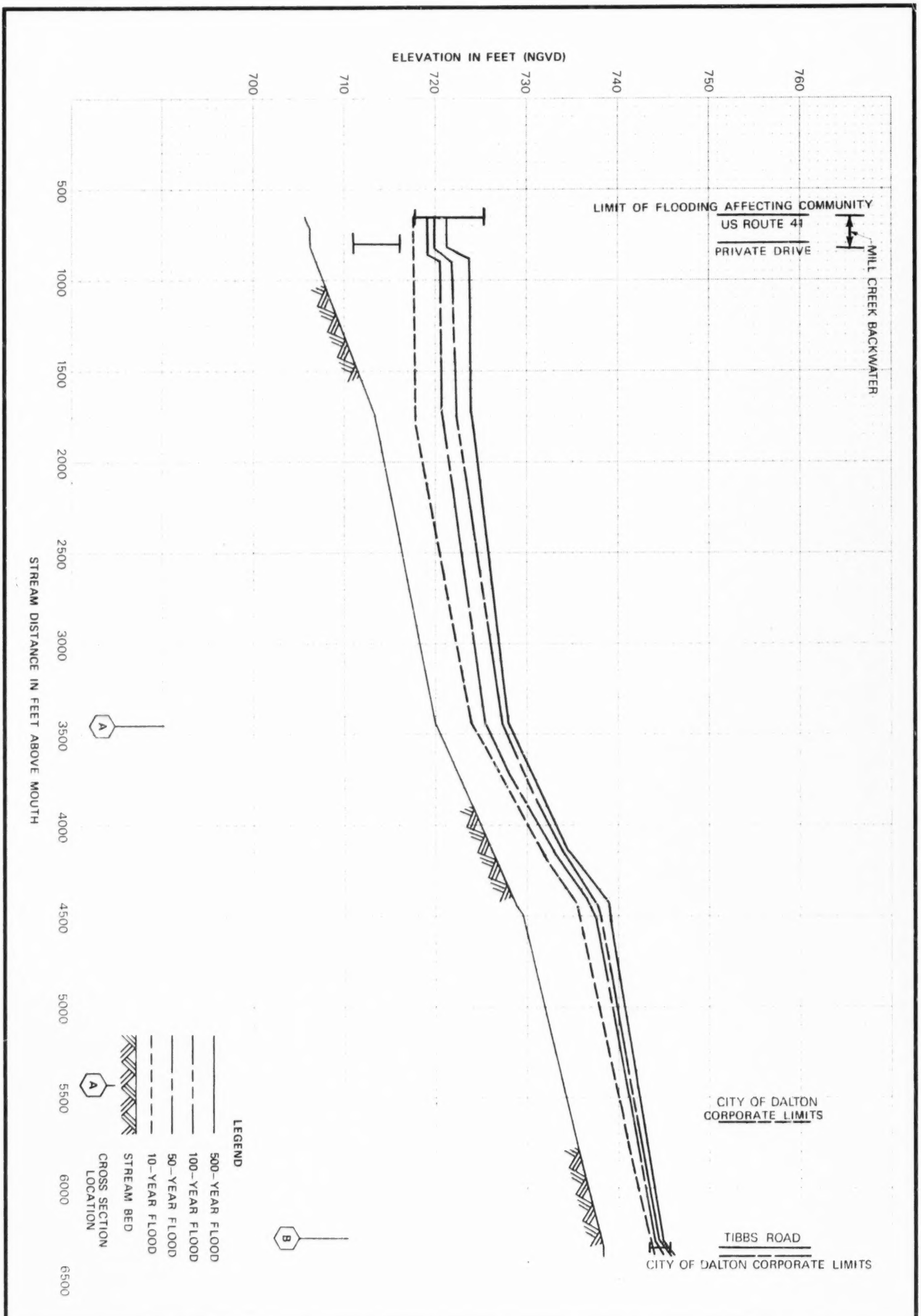

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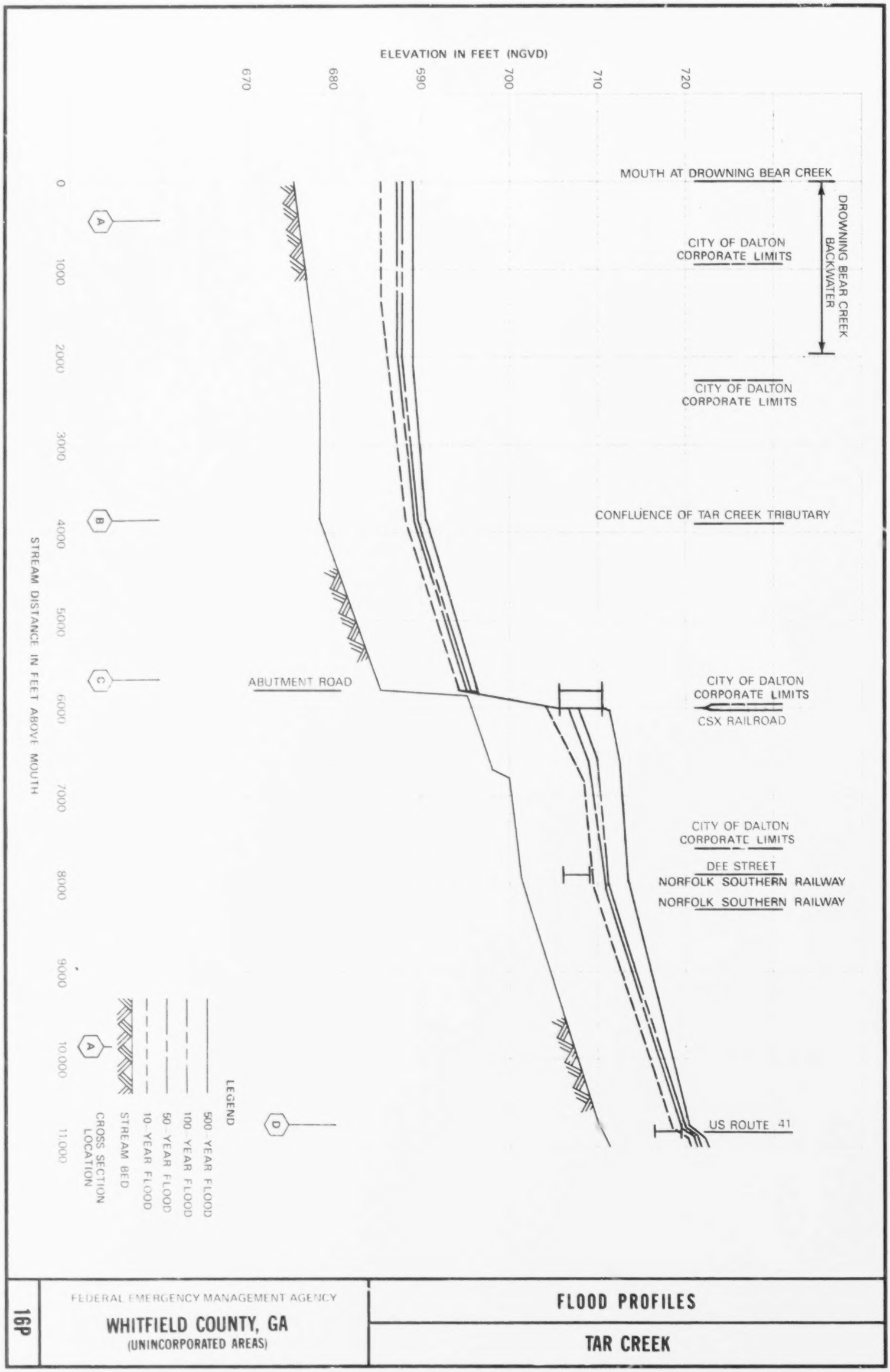

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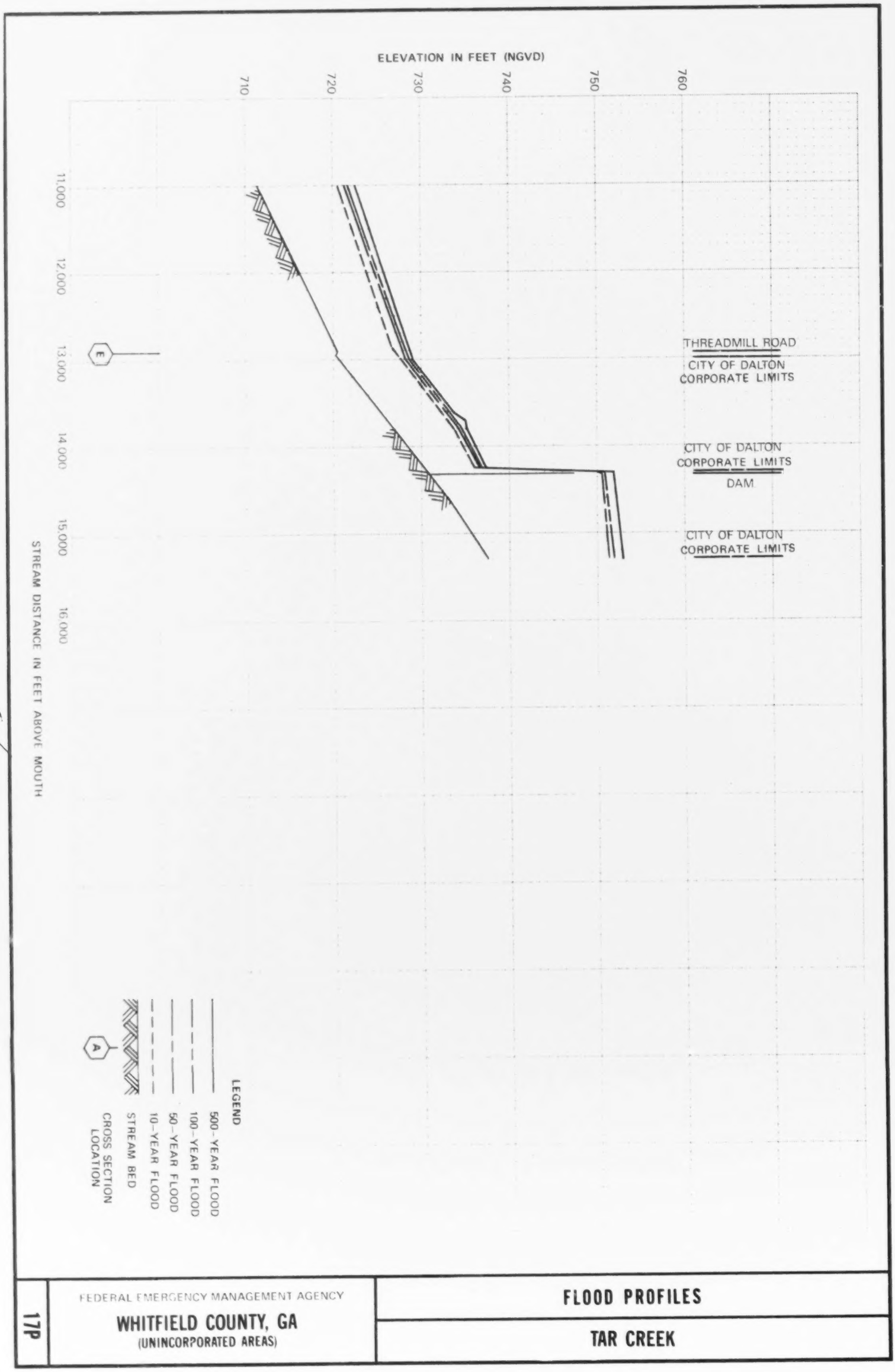

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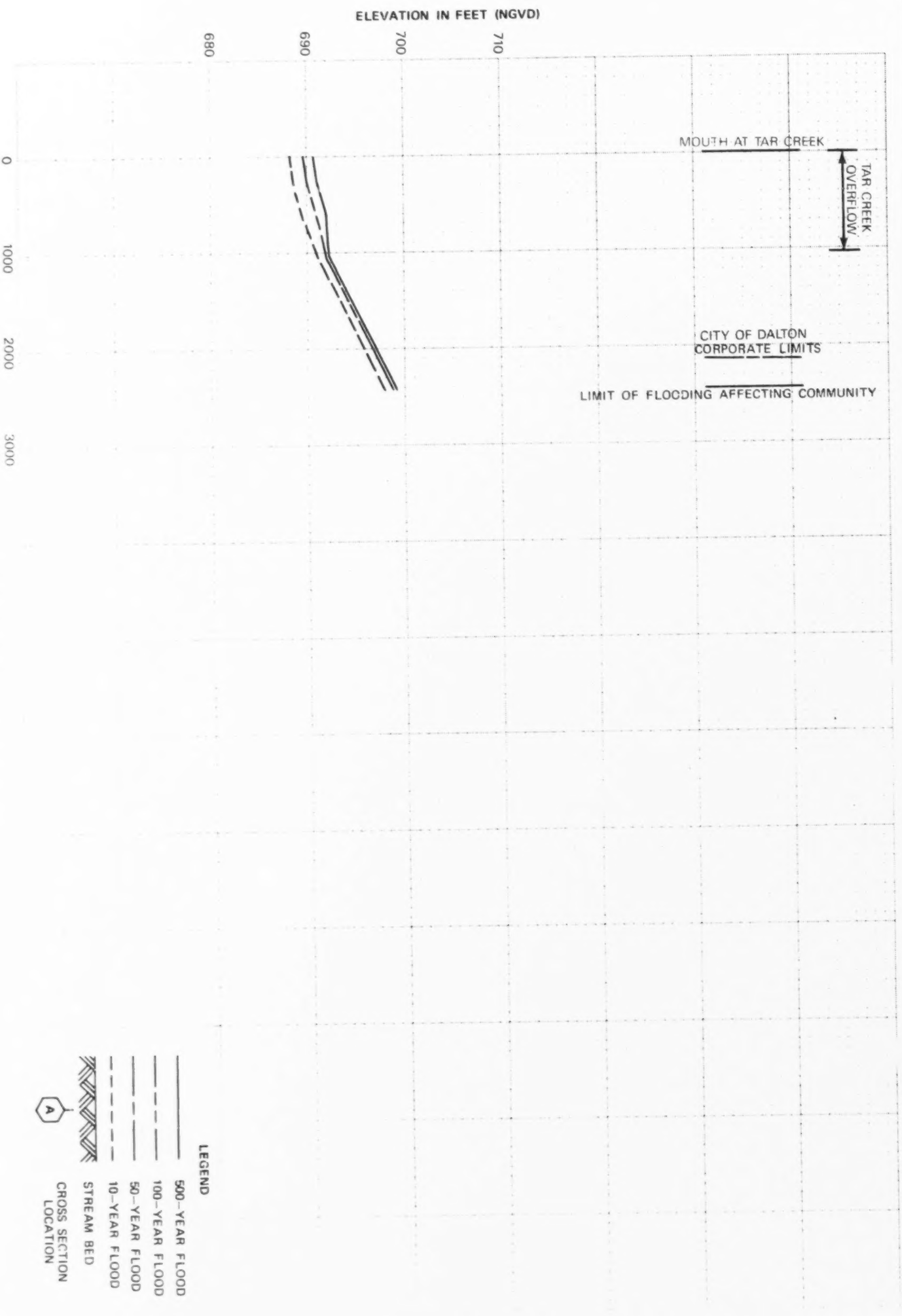
17P

FEDERAL EMERGENCY MANAGEMENT AGENCY

WHITFIELD COUNTY, GA
(UNINCORPORATED AREAS)

FLOOD PROFILES

TAR CREEK



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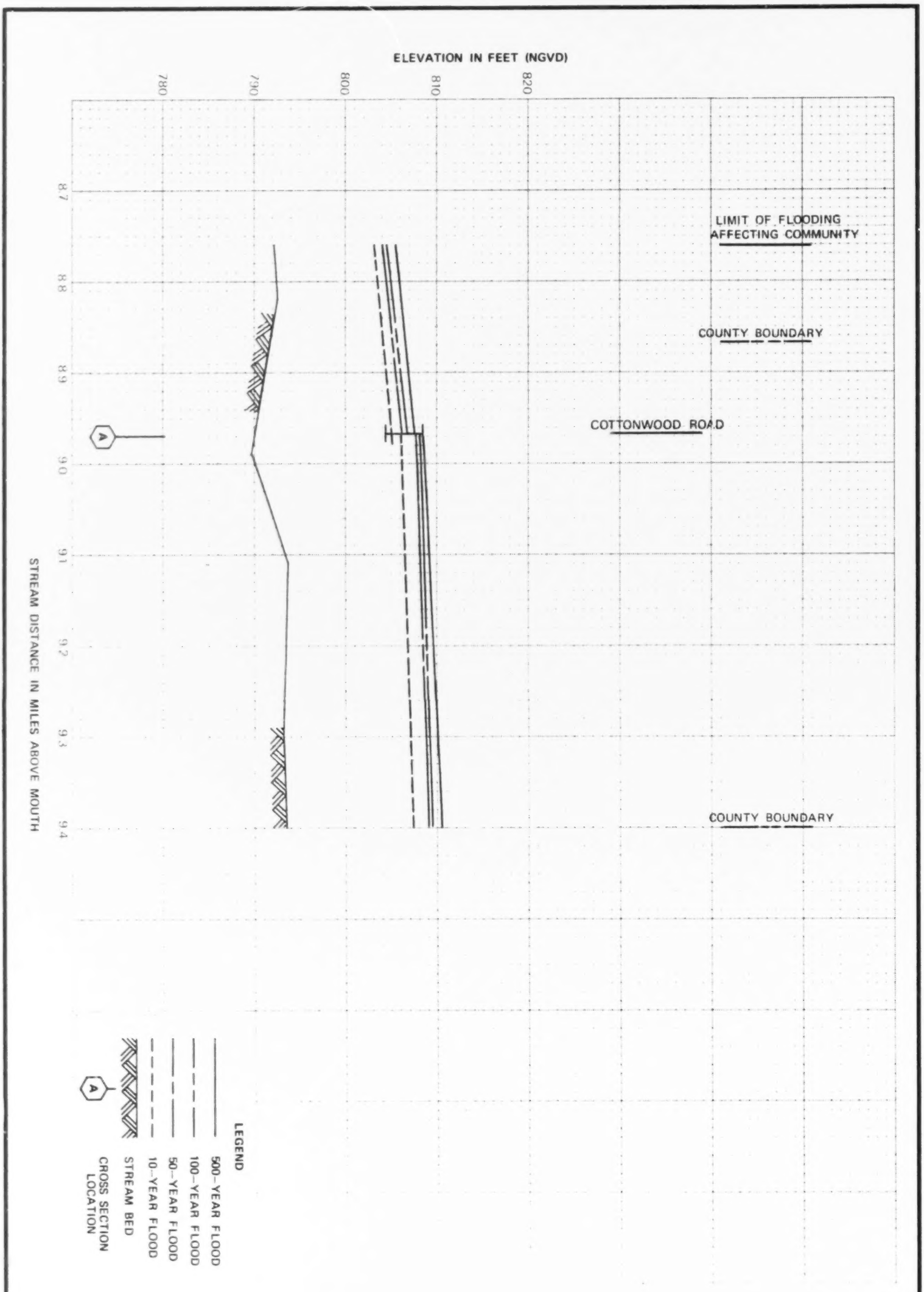

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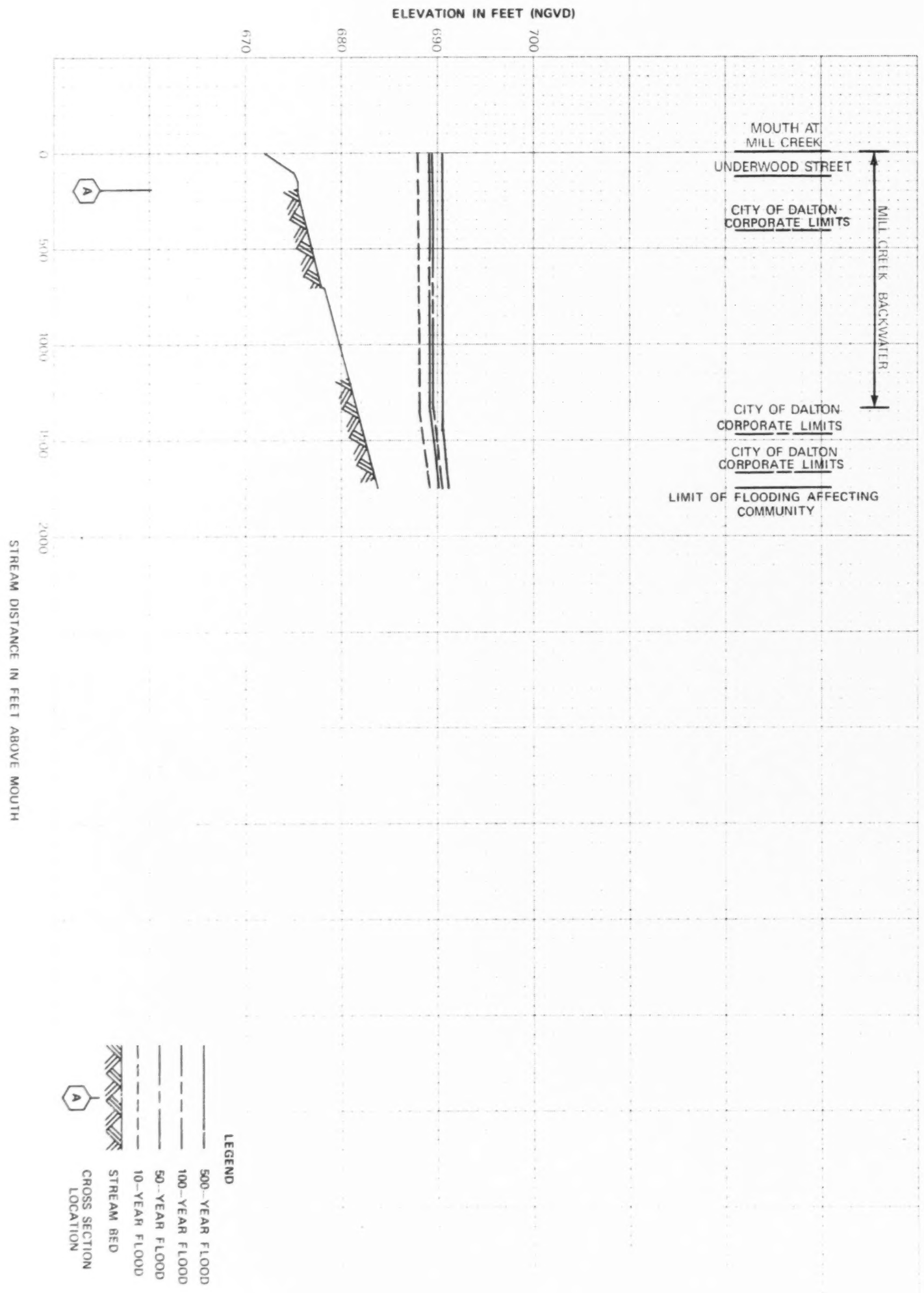

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